



(43) International Publication Date  
19 August 2004 (19.08.2004)

PCT

(10) International Publication Number  
**WO 2004/070952 A3**

(51) International Patent Classification<sup>7</sup>: **H04N 7/12**

(21) International Application Number:  
PCT/US2004/001528

(22) International Filing Date: 21 January 2004 (21.01.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/443,672 28 January 2003 (28.01.2003) US

(71) Applicant (for all designated States except US): **THOMSON LICENSING S.A.** [FR/FR]; 46, Quai A. Le Gallo, F-92648 Boulogne (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **BOYCE, Jill** [US/US]; 3 Brandywine Court, Manalapan, NJ 07726 (US). **COOPER, Jeffrey** [US/US]; 11 Toth Lane, Rocky Hill, NJ 08553 (US). **RAMASWAMY, Kumar** [IN/US]; 71 Sayre Drive, Princeton, NJ 08540 (US).

(74) Agents: **TRIPOLI, Joseph, S. et al.**; c/o Thomson Licensing Inc., 2 Independence Way, Suite 200, Princeton, NJ 08540 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

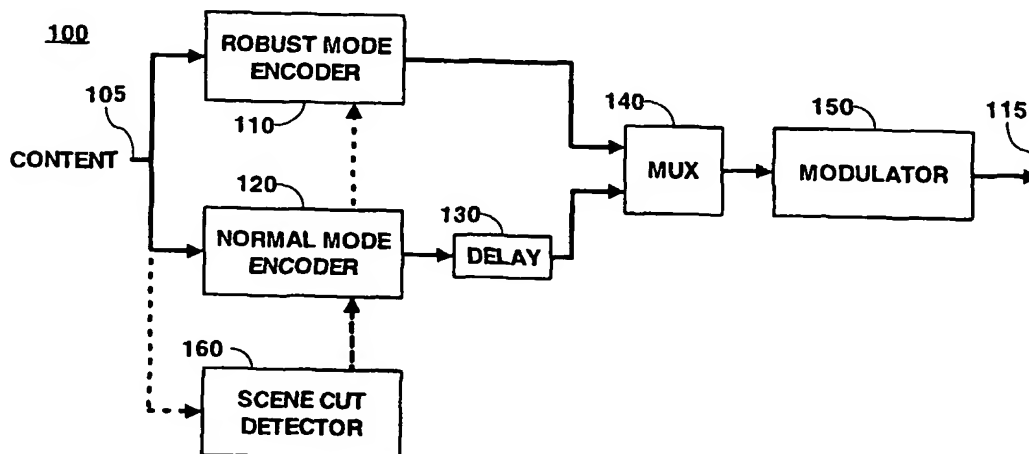
Published:

— with international search report

(88) Date of publication of the international search report:  
7 April 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: **ROBUST MODE STAGGERCASTING WITHOUT ARTIFACTS**



(57) Abstract: A method for staggercasting (figs.1-2), includes encoding a first signal (120) representing content using encoding having successive independent decoding segments and encoding a second signal (110) representing the content using encoding having successive independent decoding segments respectively corresponding to the independent decoding segments of the first encoded signal. A composite signal (115) including the first and second encoded signals is generated in which the first encoded signal is delayed (130) with respect to the second encoded signal. If an error (E) is detected in the composite signal during a portion of an independent decoding segment of the delayed first encoded signal, then the corresponding independent decoding segment of the received second encoded signal is decoded to produce the content, otherwise, the received delayed first encoded signal is decoded to produce the content.

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/01528

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04N 7/12

US CL : 375/240.25, 240.27; 725/101

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 375/240.25, 240.26, 240.27, 240.28; 725/86-87, 90, 101; 348/385.1, 388.1; 370/508

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
IEEEExplore, Science Direct

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
EAST

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 6,144,400 A (EBISAWA) 07 November 2000, entire document.	1-55
A, E	US 6,701,528 B1 (ARSENAULT ET AL) 02 March 2004, entire document.	1-55
A, E	US 6,771,657 B1 (ELSTERMANN) 03 August 2004, entire document.	1-55

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

\* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

28 November 2004 (28.11.2004)

Date of mailing of the international search report

07 DEC 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Facsimile No. (703) 305-3230

Authorized officer

Va Le

Telephone No. 703-305-4700